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MORBIDITY AND MORTALITY WEEKLY REPORT

- 88 Public Health Assessment — Russian Federation, 1992
- 91 Physical Fighting Among High School Students — United States, 1990
- 94 Street Outreach for STD/HIV Prevention — Colorado Springs, Colorado, 1987-1991
- 101 Cigarette Smoking Bans in County Jails — Wisconsin, 1991
- 103 Retrospective Assessment of Vaccination Coverage Among School-Aged Children — Selected U.S. Cities, 1991

Public Health Assessment — Russian Federation, 1992

On December 25, 1991, the Russian Federation became an independent republic, and on January 2, 1992, restrictions on retail prices of most commodities were removed. From January 16 through February 6, a multidisciplinary team from the U.S. Food and Humanitarian Assistance Bureau (FHA) conducted an assessment of the needs for humanitarian and technical assistance, focusing on three regions in the southern Ural Mountains—Yekaterinburg, Perm, and Cheliabinsk—and three regions in south-central Siberia—Kusbas, Tomsk, and Novosibirsk. The FHA assessment included observations of health facilities, vaccine- and drug-storage centers, and disease-control programs; review of health data at central, regional, and district epidemiology stations; and collection of food-price and income data through interviews with administrative authorities and surveys of markets and private homes. This report summarizes findings from the assessment.

Summary Information. The Russian Federation (population: 150 million) has a reported birth rate of 13.5 per 1000 population, crude death rate of 11.2 per 1000 population, infant mortality rate of 17.5 per 1000 live births, and maternal mortality rate of 54.7 per 100,000 live births. Approximately 75% of all deaths are caused by cardiovascular diseases, cancer, and trauma; 3% of deaths are caused by infectious diseases.

Infectious diseases. During 1991, the incidence of certain infectious diseases increased, reversing previous trends. For example, the national annual incidence rates of reported cases of diphtheria, pertussis, and measles increased by 54.7%, 25.1%, and 12.2%, respectively, over those in 1990. Moreover, measles vaccine has not been produced in Russia since August 1991, and vaccine reserves were depleted in December. Current vaccination coverage rates for children 1–3 years of age vary by region for measles (65%–80%) and for diphtheria and tetanus toxoids and pertussis vaccine (DTP) (45%–60%). Although only 16 cases of poliomyelitis were reported in Russia in 1991, oral poliomyelitis vaccine (OPV) production has declined, while the cost of OPV has increased 10-fold.

During 1991, national incidence rates for bacterial dysentery and certain other enterically transmitted diseases increased substantially. In the Tom River Basin in Siberia, problems with maintenance of water-purification systems and organic

Public Health Assessment — Continued

pollution of drinking water supplies were associated with incidence rates of gastroenteritis, hepatitis A, and bacterial dysentery that were up to 82%, 47%, and 22% higher, respectively, than the national incidence rates.

Noninfectious diseases. Severe shortages of essential medical supplies and drugs have restricted the capacity of hospitals and clinics to care for newborn infants and to manage patients with chronic diseases and acute surgical and traumatic problems. However, the public health impact of these shortages has not yet been quantified.

Nutrition. Protein-energy malnutrition has not been reported; however, clinic physicians reported an increase in the number of children and women with anemia and micronutrient deficiencies. Price and income data indicate that persons at risk for decreases in dietary intake include the elderly, the unemployed, single-parent families, the homeless, and the displaced. For example, in mid-January, in the Siberian regions (where 25% of all persons receive a pension for the elderly), the average pension was 342 rubles per month; however, the average monthly cost per capita for basic food items was 700–750 rubles—an income-to-food cost ratio of 1:2. Some regional governments are attempting to target assistance toward groups at risk for malnutrition by providing subsidized meals and free food coupons, as well as free milk daily to preschool-aged children.

Assistance priorities. The FHA team provided recommendations for assistance, including the need to support existing targeted food programs; provide measles vaccine and essential drugs and medical supplies; and develop an emergency public health surveillance system.

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Editorial Note: In the Russian Federation, evolving public health problems are related to three factors: the gradual erosion of hard currency income; the sudden separation of Russia from traditional sources of supplies in the other republics of the former Soviet Union; and inflation associated with the removal of restrictions on retail prices of basic commodities. Vaccine production plants and water-purification systems have not been adequately maintained, and there have been acute shortages of basic hospital supplies (e.g., disposable syringes and needles, intravenous catheters, blood transfusion sets, rubber gloves, glass ampoules, bandages, and suture material) and essential drugs (e.g., cephalosporins, quinolones, insulin, analgesics, anaesthetic agents, disinfectant agents, bronchodilators, and oral contraceptives). Finally, since late 1991, prices have increased threefold for basic foodstuffs (e.g., bread, eggs, meat, and milk).

The FHA assessment indicated three priorities for public health assistance to the Russian Federation. First, efforts should focus on the prevention of vaccine-preventable childhood diseases, including measles, pertussis, diphtheria, and poliomyelitis. The assessment indicated that approximately 3 million children aged 1–3 years may be at risk for measles and serious sequelae. In addition to providing measles vaccine, efforts are needed to increase the production of other childhood vaccines. Second, support should be provided to water-purification plants, particularly in regions where organic pollution of public water supplies is severe. Third, medical supplies should include essential and life-saving drugs and other basic supplies.

Public Health Assessment — Continued

As food-related emergencies evolve, evidence of malnutrition may be delayed (1). However, one important early indicator of malnutrition is a change in the ratio of income-to-market food prices, such as that identified in Siberia (2). Although the FHA assessment did not identify reports of protein-energy malnutrition, efforts to prevent and monitor this potential problem must be maintained. International food assistance should target the elderly and the young, who are at increased risk for problems associated with diminished nutrition.

The impact of commodity shortages on the health status of the population should be monitored through an emergency public health surveillance system that can be adapted from the existing national health information system. An additional approach may be to employ sentinel surveillance in a representative sample of regions. Potential indicators include age-specific death rates for persons aged ≥ 65 years; incidence rates for measles, diphtheria, and pertussis; incidence rates for bacterial dysentery; incidence rates for anemia in pregnant women; diabetes-specific hospital-admission and death rates; death rates for selected surgical conditions; perinatal mortality rates in maternity hospitals; asthma death rates; and emergency room-based death rates for selected injuries. A surveillance system also could include prices of selected food items, income data, and stocks of essential medical supplies in sentinel hospitals.

To maximize the impact and cost-effectiveness of humanitarian assistance efforts to Russia and the other republics of the former Soviet Union, such efforts should continue to be based on initial field assessments and, subsequently, on ongoing surveillance information. Because baseline health indicators in the central Asian republics suggested more serious problems than those in Russia before the dissolution of the Soviet Union, assessments in these republics (i.e., Kazakhstan, Kyrgyzstan, Tadzhikistan, Uzbekistan, and Turkmenistan) should be expedited.

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Physical Fighting Among High School Students — United States, 1990

During 1986, interpersonal violence caused an estimated 2.2 million injuries and more than 20,000 deaths in the United States (1,2). Physical fighting, a common form of interpersonal violence among adolescents, is a prominent cause of injuries and homicides in this age group (3). This article presents self-reported data about the prevalence and incidence of physical fighting among high school students in the United States during 1990.

The national school-based Youth Risk Behavior Survey (YRBS) is a component of the Youth Risk Behavior Surveillance System, which periodically measures the prevalence of priority health-risk behaviors among youth through representative national, state, and local surveys (4). The 1990 YRBS used a three-stage sample design to obtain a representative sample of 11,631 students in grades 9–12 in the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. Students were asked: "During the past 30 days, how many times have you been in a physical fight

Physical Fighting — Continued

in which you or the person you were fighting were injured and had to be treated by a doctor or a nurse?" and "Who did you fight with the last time you were in a physical fight?" In this report, incidence rates* describe the number of times per 100 students that physical fights occurred during the 30-day period. Because students were not asked the location of these fights, the extent to which physical fights occurred on school premises was not determined.

Nearly 8% of all students in grades 9–12 reported that, during the 30 days preceding the survey, they had been in at least one physical fight that resulted in an injury requiring treatment by a doctor or nurse (Table 1). Of these students, 53.3% said they had fought one time; 27.8%, two or three times; 10.1%, four or five times; and 10.1%, six or more times. Male students (12.2%) were significantly more likely than female students (3.6%) to report having been in a fight.

An estimated 18 physical-fighting incidents occurred per 100 students per month (Table 2). However, the incidence of physical fighting was four times higher for male students (28 incidents per 100 students) than for female students (7 incidents per 100). The incidence was highest for black male students (47 incidents per 100), followed by Hispanic male students (35 incidents per 100) and white male students (22 incidents per 100). Students who reported four or more physical fights during the 30 days preceding the survey (1.6% of all students) accounted for nearly half (46.4%) of all physical fights.

Among students who were involved in a physical fight, the most recent physical fight was more likely to have been with an acquaintance (family member, friend, or date) (57.3%; 95% confidence interval [CI]=54.8%–59.8%) than with a stranger (32.1%; 95% CI=29.7%–34.5%). Male students (40.2%; 95% CI=37.6%–43.0%) reported physical fights with strangers significantly more often than female students (18.6%; 95% CI=14.6%–22.4%).

*The incidence rate was calculated by adding the number of times each student reported being involved in a physical fight during the 30 days preceding the survey and dividing this sum by the total number of students. The number of physical-fighting episodes per student was then multiplied by 100 to determine the incidence rate per 100 students. Students who replied that they had fought two or three times were assigned a physical fighting frequency of 2.5; four or five times, 4.5; and six or more times, 6.

TABLE 1. Percentage of high school students who reported being in a physical fight,* by race/ethnicity[†] and sex — United States, Youth Risk Behavior Survey, 1990[‡]

Race/ Ethnicity	Male		Female		Total	
	%	(95% CI) [§]	%	(95% CI)	%	(95% CI)
White	10.1	(8.3–12.0)	2.4	(1.9– 2.9)	6.2	(5.3– 7.2)
Black	17.6	(13.6–21.6)	7.7	(4.9–10.4)	12.5	(9.5–15.5)
Hispanic	16.2	(12.4–20.0)	4.4	(2.1– 6.7)	10.0	(7.7–12.2)
Total	12.2	(10.6–13.8)	3.6	(3.0– 4.3)	7.9	(7.0– 8.9)

*During the 30 days preceding the survey, in which at least one person required treatment by a doctor or nurse.

[†]Numbers from racial/ethnic groups other than white and black were too small to provide separate estimates; however, the totals include all races.

[‡]Unweighted sample size = 11,631 students.

[§]Confidence interval.

Physical Fighting — Continued

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Editorial Note: Preventing physical fighting among young persons should be an important public health strategy to prevent injuries and deaths from violence. Homicide is the second leading cause of death for persons aged 15–24 years (5), and nonfatal violence often precedes fatal violence among young persons (6). The demographic patterns of physical fighting in this report are consistent with those characterizing homicide: the prevalence of both is greater among males and minorities than females and nonminorities, and both physical fighting and homicide occur most frequently among persons who know each other (7). These similarities suggest that physical fighting is part of a spectrum of violent behavior that may result in homicide.

One of the national health objectives for the year 2000 (objective 7.9) is to reduce by 20% the incidence of physical fighting among adolescents aged 14–17 years (5). To achieve this objective, the incidence rate determined by the 1990 YRBS must be reduced from 18 episodes per 100 students per month to 14 or fewer episodes. Strategies that may reduce interpersonal violence include decreasing the cultural acceptance of violence (8); decreasing aggressive behavior among parents and their children (9); reducing the exposure of children and adolescents to violence in the media (10); and improving the recognition, management, and treatment of adolescent victims and those at high risk for assaults (8).

Many experts in the prevention of violence recommend that emphasis also should be placed on helping schools and other agencies that serve youth to teach nonviolent conflict resolution skills as a means of preventing violence (objective 7.16) (5). Educational interventions for adolescents who have not yet established patterns of physical-fighting behavior may reduce the need for more extensive rehabilitative efforts later (i.e., through juvenile detention centers, correctional facilities, or in-school disciplinary programs). Most of the recommended strategies to reduce physical fighting among adolescents require greater cooperation among educational programs and other services in public health, criminal justice, education, and social service agencies.

TABLE 2. Thirty-day incidence* of physical fighting, by race/ethnicity† and sex — United States, Youth Risk Behavior Survey, 1990‡

Race/ Ethnicity	Male		Female		Total	
	Incidence	(95% CI) [§]	Incidence	(95% CI)	Incidence	(95% CI)
White	22	(15–29)	4	(3–6)	13	(10–17)
Black	47	(29–66)	16	(6–26)	31	(19–44)
Hispanic	35	(24–46)	11	(0–22)	22	(14–30)
Total	28	(23–33)	7	(5–9)	18	(15–21)

*Per 100 students. Students who reported fighting (i.e., having been in a physical fight in which at least one person required treatment by a doctor or nurse) two or three times were assigned a fighting frequency of 2.5; four or five times, 4.5; and six or more times, 6.

†Numbers from racial/ethnic groups other than white and black were too small to provide separate estimates; however, the totals include all races.

‡Unweighted sample size = 11,631 students.

§Confidence interval.

*Physical Fighting — Continued**References*

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Street Outreach for STD/HIV Prevention — Colorado Springs, Colorado, 1987–1991

Strategies to identify and influence persons at increased risk for infection with human immunodeficiency virus (HIV) and other sexually transmitted diseases (STDs) require outreach to provide prevention messages directly to persons at risk, assist them to obtain prevention services, and encourage them to reduce risks. Street outreach programs complement CDC's information and education campaign "America Responds to AIDS" by providing persons with specific risk-reduction messages and materials (1). This report describes efforts to implement such approaches in Colorado Springs, Colorado, and presents preliminary results regarding the prevalence of *Neisseria gonorrhoeae* and *Chlamydia trachomatis* infections among female street prostitutes in that community.

Since 1969, women who identified themselves or were referred to the health department as prostitutes in Colorado Springs (El Paso County) have been offered voluntary screening for gonorrhea and syphilis (2,3). From 1970 through 1986, 19% of specimens cultured for *N. gonorrhoeae* were positive; 20 cases of syphilis were also diagnosed. In June 1985, screenings were augmented by voluntary counseling and testing for HIV antibody and in June 1987 for *C. trachomatis*.

In 1987, after a cross-sectional study established the prevalence of HIV and other STDs in 98 prostitutes (4), the El Paso County Health Department began an intensive program of risk-reduction counseling and condom distribution for female prostitutes in Colorado Springs. Health workers visited sites where prostitutes congregate to 1) present and reinforce messages about STDs and HIV infection prevention, 2) encourage prostitutes and their sex partners to visit the local health department clinic for HIV-antibody testing and screening for other STDs, 3) refer drug users to local drug-treatment programs, and 4) dispense free condoms and bottles of bleach

Street Outreach — Continued

(for injecting-drug users [IDUs] to use in cleaning needles and syringes). On average, one worker spent approximately 1 hour per day in the field, spoke with approximately five prostitutes per day, and distributed approximately 300 condoms per week.

In 1990, the prevalence of *N. gonorrhoeae* infections among prostitutes declined substantially and remained lower in 1991 (Table 1). An analysis based on a logistic regression model (5) suggested that the prevalence of both *N. gonorrhoeae* and *C. trachomatis* infections in 118 different prostitutes was inversely related to frequency of testing. When an adjustment was made in the model for the effect of the year of testing, 32 prostitutes who were tested five or more times were significantly less likely to be infected with *N. gonorrhoeae* than 86 prostitutes who were tested less frequently (odds ratio = 0.2; 95% confidence interval = 0.1–0.6).

From 1987 to 1990, reported cases of gonorrhea among prostitutes, their sex partners, and all others in Colorado Springs declined 16%, from 1001 cases to 840 cases. From 1987 through 1990, three cases of early syphilis were diagnosed among prostitutes. Of 252 prostitutes tested for HIV antibody from 1985 through 1990, 11 (4.4%) were positive; of the 10 interviewed, nine were IDUs.

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Editorial Note: The increased risk for gonorrhea and other STDs among prostitutes reflects their increased exposure to infected sex partners. In Colorado Springs, street outreach, the active distribution of condoms, and repeated testing and counseling to reinforce risk-reduction messages were key components of the program initiated in 1987 to promote the proper and consistent use of condoms to prevent sexual transmission of HIV. Although direct measures of condom use are unavailable, the recent decline in gonorrhea may indicate, in part, increased condom use by sex partners of prostitutes.

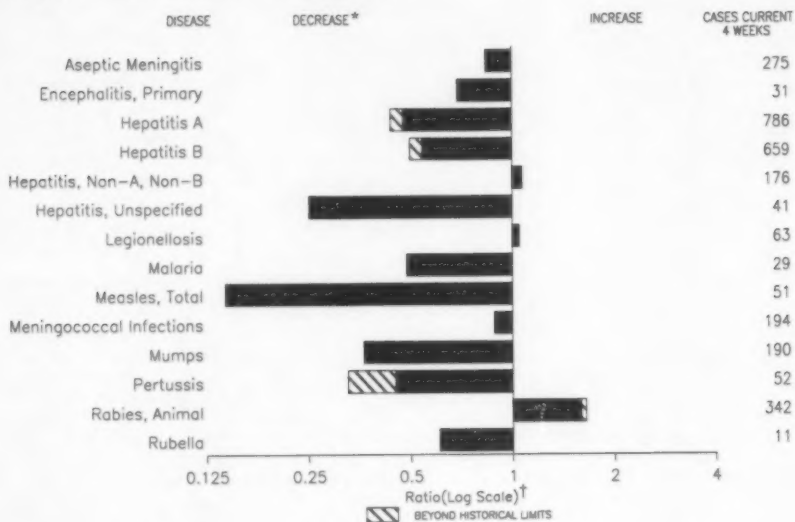
The more than 2-year period between implementation of the outreach program and the decline in the prevalence of gonorrhea may reflect gradual changes in attitudes and behaviors among prostitutes that were associated with increasing interaction with health-care workers. One possibility for the decline in the number of infections with *N. gonorrhoeae* could be that more proper and consistent condom use occurred among prostitutes and their sex partners. However, neither attitude nor

(Continued on page 101)

TABLE 1. Number of women prostitutes tested and percentage of tests positive for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* — Colorado Springs, Colorado, 1987–1991

Year	No. tested	<i>N. gonorrhoeae</i>		<i>C. trachomatis</i> *		
		No. tests	Positive		Positive	
			No.	(%)	No.	(%)
1987	88	163	21	(12.9)	66	4 (6.1)
1988	96	169	22	(13.0)	138	17 (12.3)
1989	88	176	23	(13.1)	150	15 (10.0)
1990	71	145	4	(2.8)	144	9 (6.3)
1991	76	148	7	(4.7)	148	11 (7.4)

**C. trachomatis* testing began in June 1987.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending February 8, 1992, with historical data — United States

*The decreases beyond historical limits in disease reports for the past 4 weeks reflect a backlog of data transmission for 1991 cases in many reporting areas and delayed transmission of cases due to a change to a new system in some states beginning in 1992.

[†]Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending February 8, 1992 (6th Week)

	Cum. 1992		Cum. 1992
AIDS	4,877	Measles: imported	5
Anthrax	-	indigenous	53
Botulism: Foodborne	2	Plague	-
Infant	2	Poliomyelitis, Paralytic*	-
Other	-	Psittacosis	10
Brucellosis	2	Rabies, human	-
Cholera	2	Syphilis, primary & secondary	3,497
Congenital rubella syndrome	-	Syphilis, congenital, age < 1 year	-
Diphtheria	-	Tetanus	3
Encephalitis, post-infectious	6	Toxic shock syndrome	24
Gonorrhea	52,652	Trichinosis	1
Haemophilus influenzae (invasive disease)	182	Tuberculosis	1,679
Hansen Disease	7	Tularemia	10
Leptospirosis	1	Typhoid fever	17
Lyme Disease	239	Typhus fever, tickborne (RMSF)	12

*Nine suspected cases of poliomyelitis were reported in 1991; 4 of the 8 suspected cases in 1990 were confirmed, and all were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending February 8, 1992, and February 9, 1991 (6th Week)

Reporting Area	AIDS	Aseptic Meningi- tis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionel- losis	Lyme Disease
			Primary	Post-in- fectious			A	B	NA,NB	Unspeci- fied		
			Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992
UNITED STATES	4,877	497	50	6	52,652	67,042	1,459	1,138	274	50	107	239
NEW ENGLAND	71	62	4	-	1,219	2,288	58	90	6	8	11	29
Maine	6	6	-	-	12	11	8	1	-	-	2	-
N.H.	6	2	-	-	-	36	4	5	-	-	1	4
Vt.	-	3	2	-	1	10	-	1	1	-	2	1
Mass.	2	17	2	-	502	772	34	65	5	8	5	2
R.I.	10	34	-	-	95	119	5	5	-	-	1	18
Conn.	47	-	-	-	609	1,340	7	13	-	-	-	4
MID. ATLANTIC	902	51	4	-	2,316	7,770	137	166	13	1	23	146
Upstate N.Y.	145	7	-	-	-	1,284	18	14	6	-	10	44
N.Y. City	348	12	-	-	333	2,520	38	10	1	-	4	-
N.J.	283	4	-	-	350	1,015	31	76	2	-	-	21
Pa.	126	28	4	-	1,633	2,951	50	66	4	1	9	81
E.N. CENTRAL	480	88	10	-	9,677	12,807	200	196	21	2	28	21
Ohio	109	36	5	-	3,331	3,515	64	38	17	-	19	13
Ind.	63	13	-	-	1,044	1,390	81	73	-	-	2	3
Ill.	256	2	1	-	3,814	4,017	14	2	-	1	-	-
Mich.	43	37	4	-	1,290	3,048	15	63	1	1	7	5
Wis.	9	-	-	-	198	837	26	20	3	-	-	-
W.N. CENTRAL	180	25	3	2	3,010	3,359	121	13	-	-	5	2
Minn.	26	1	-	-	337	364	21	3	-	-	-	-
Iowa	13	10	-	1	212	246	3	4	-	-	1	2
Mo.	82	-	-	-	1,683	1,997	-	-	-	-	-	-
N. Dak.	-	1	-	-	-	4	4	-	-	-	-	-
S. Dak.	2	2	-	1	29	48	71	-	-	-	-	-
Nebr.	4	2	-	-	33	271	10	1	-	-	4	-
Kans.	53	9	3	-	716	429	12	5	-	-	-	-
S. ATLANTIC	1,141	89	13	2	20,498	20,421	80	195	31	4	15	18
Del.	7	4	2	-	201	215	1	6	-	-	-	3
Md.	191	17	2	-	1,970	2,233	24	51	4	3	3	1
D.C.	95	1	-	-	930	1,342	1	8	-	-	-	-
Va.	40	27	2	1	2,346	1,637	9	23	4	1	1	10
W. Va.	7	-	1	-	118	145	1	5	-	-	-	1
N.C.	69	14	5	-	2,643	4,132	9	41	14	-	2	1
S.C.	26	2	-	-	1,349	1,806	5	6	-	-	8	-
Ga.	109	10	-	-	8,455	5,025	7	18	5	-	-	-
Fla.	597	14	1	1	2,486	3,886	23	37	4	-	1	2
E.S. CENTRAL	194	49	-	-	4,548	5,726	27	101	143	-	7	3
Ky.	22	32	-	-	472	611	13	8	-	-	4	2
Tenn.	59	9	-	-	1,550	2,127	6	76	139	-	3	1
Ala.	84	8	-	-	1,124	1,630	4	17	4	-	-	-
Miss.	29	-	-	-	1,402	1,358	4	-	-	-	-	-
W.S. CENTRAL	467	6	-	1	5,196	6,923	58	45	6	2	-	2
Ark.	30	6	-	-	401	721	14	12	-	-	-	1
La.	79	-	-	-	1,028	1,325	6	3	-	1	-	-
Okla.	41	-	-	1	534	778	38	30	6	1	-	1
Tex.	317	-	-	-	3,233	4,099	-	-	-	-	-	-
MOUNTAIN	102	10	3	-	1,032	1,362	217	55	8	8	8	-
Mont.	1	-	1	-	8	8	16	4	-	-	1	-
Idaho	-	-	-	-	12	15	8	9	-	-	-	-
Wyo.	-	-	-	-	4	15	-	1	3	-	-	-
Colo.	38	2	1	-	306	401	58	11	4	7	-	-
N. Mex.	10	1	1	-	89	123	10	6	-	-	-	-
Ariz.	20	7	-	-	458	516	108	8	1	-	3	-
Utah	11	-	-	-	18	45	6	-	-	1	-	-
Nev.	22	-	-	-	137	239	11	16	-	-	4	-
PACIFIC	1,340	117	13	1	5,156	6,386	561	277	46	25	10	18
Wash.	31	-	-	-	436	592	32	24	5	-	3	-
Oreg.	47	-	-	-	165	240	36	25	7	-	-	-
Calif.	1,231	92	11	1	4,366	5,362	479	226	34	25	7	18
Alaska	4	1	2	-	110	103	1	1	-	-	-	-
Hawaii	27	24	-	-	49	89	13	1	-	-	-	-
Guam	-	-	-	-	12	-	1	-	-	2	-	-
P.R.	107	7	-	-	1	35	2	11	-	-	-	-
V.I.	1	-	-	-	12	46	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	2	-	-	-	-	-	-

N: Not notifiable

U: Unavailable

C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending February 8, 1992, and February 9, 1991 (6th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin- gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
		Cum. 1992	1992	Cum. 1992	1992	Cum. 1992									
UNITED STATES	53	14	53	5	5	500	312	52	250	13	77	234	1	17	53
NEW ENGLAND	1	1	1	1	1	2	17	-	-	1	1	16	-	4	-
Maine	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
N.H.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vt.	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-
Mass.	1	1	1	1†	1	-	8	-	-	-	-	1	-	-	-
R.I.	-	-	-	-	-	-	-	-	-	1	1	8	-	-	-
Conn.	-	-	-	-	-	2	6	-	-	-	-	-	-	4	-
MID. ATLANTIC	4	-	2	2	2	281	14	2	15	4	12	33	1	1	14
Upstate N.Y.	-	-	-	1†	1	4	6	2	2	4	4	16	1	1	14
N.Y. City	1	-	1	1†	1	22	4	-	4	-	-	-	-	-	-
N.J.	1	-	-	-	-	96	-	-	-	-	-	2	-	-	-
Pa.	2	-	1	-	-	159	4	-	9	-	8	15	-	-	-
E.N. CENTRAL	2	2	2	-	-	9	62	11	29	-	12	57	-	2	1
Ohio	-	2	2	-	-	-	9	7	12	-	-	14	-	-	-
Ind.	-	-	-	-	-	-	10	1	3	-	9	13	-	-	1
Ill.	-	-	-	-	-	7	27	-	5	-	-	16	-	2	-
Mich.	1	-	-	-	-	1	15	3	8	-	2	7	-	-	-
Wis.	1	-	-	-	-	1	1	-	1	-	1	7	-	-	-
W.N. CENTRAL	4	-	-	-	-	-	16	1	2	1	3	25	-	1	2
Minn.	1	-	-	-	-	-	3	-	-	-	-	8	-	-	1
Iowa	2	-	-	-	-	-	1	1	2	-	1	4	-	-	-
Mo.	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Nebr.	-	-	-	-	-	-	2	-	-	1	1	1	-	-	-
Kans.	1	-	-	-	-	-	10	-	-	-	1	2	-	-	-
S. ATLANTIC	13	5	14	1	1	3	55	24	137	3	14	8	-	1	-
Del.	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Md.	7	1	1	-	-	-	3	1	14	-	7	-	-	-	-
D.C.	2	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Va.	1	3	3	1†	1	-	5	7	10	2	2	2	-	-	-
W. Va.	-	-	-	-	-	-	4	-	6	-	-	-	-	-	-
N.C.	1	-	-	-	-	-	12	6	26	-	4	4	-	-	-
S.C.	-	-	-	-	-	-	5	4	36	-	-	-	-	-	-
Ga.	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
Fla.	1	1	10	-	-	3	14	6	43	1	1	1	-	1	-
E.S. CENTRAL	2	4	25	-	-	-	33	2	6	-	5	4	-	-	-
Ky.	-	4	25	-	-	-	19	-	-	-	-	-	-	-	-
Tenn.	1	-	-	-	-	-	4	2	3	-	-	3	-	-	-
Ala.	1	-	-	-	-	-	10	-	3	-	5	1	-	-	-
Miss.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.S. CENTRAL	1	-	-	-	-	5	12	2	6	1	5	9	-	-	-
Ark.	-	-	-	-	-	5	5	1	4	-	3	-	-	-	-
La.	-	-	-	-	-	-	-	1	1	-	-	6	-	-	-
Okla.	1	-	-	-	-	-	7	-	1	1	2	3	-	-	-
Tex.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOUNTAIN	6	-	-	-	-	43	13	-	13	-	7	36	-	-	1
Mont.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	2	-	1	-	4	7	-	-	-
Wyo.	-	-	-	-	-	-	1	-	-	-	-	3	-	-	-
Colo.	3	-	-	-	-	1	3	-	2	-	1	10	-	-	-
N. Mex.	2	-	-	-	-	33	-	N	N	-	2	4	-	-	-
Ariz.	1	-	-	-	-	2	1	-	7	-	-	7	-	-	-
Utah	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Nev.	-	-	-	-	-	7	4	-	2	-	-	5	-	-	-
PACIFIC	20	2	9	1	1	157	90	10	42	3	18	46	-	8	35
Wash.	2	-	-	-	-	-	18	-	2	1	1	1	-	-	-
Oreg.	1	-	1	-	-	-	17	N	N	-	3	4	-	-	-
Calif.	15	2	7	1†	1	157	49	10	39	1	11	25	-	6	34
Alaska	-	-	1	-	-	-	3	-	-	-	-	5	-	-	-
Hawaii	2	-	-	-	-	-	3	-	1	1	3	11	-	2	1
Guam	-	U	-	U	-	-	-	U	1	U	-	-	U	-	-
P.R.	-	-	-	-	-	1	1	-	-	-	1	4	-	-	-
V.I.	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable ¹International ²Out-of-state

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending February 8, 1992, and February 9, 1991 (6th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic- shock Syndrome	Tuberculosis		Tula- remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992
UNITED STATES	3,497	4,790	24	1,679	1,771	10	17	12	651
NEW ENGLAND	65	121	3	98	64	-	2	1	60
Maine	-	-	-	16	16	-	-	-	-
N.H.	-	1	2	-	-	-	-	-	-
Vt.	-	1	-	-	-	-	-	-	-
Mass.	21	61	1	82	14	-	2	1	-
R.I.	4	6	-	-	15	-	-	-	-
Conn.	40	52	-	-	19	-	-	-	60
MID. ATLANTIC	391	934	3	308	398	-	1	2	221
Upstate N.Y.	-	72	-	-	21	-	-	-	164
N.Y. City	186	398	-	241	283	-	-	2	-
N.J.	19	145	-	16	82	-	1	-	40
Pa.	186	319	3	51	12	-	-	-	17
E.N. CENTRAL	531	526	6	157	190	-	1	3	10
Ohio	62	54	2	33	51	-	1	2	-
Ind.	35	10	2	15	5	-	-	1	-
Ill.	266	285	-	80	120	-	-	-	1
Mich.	123	116	2	20	-	-	-	-	-
Wis.	45	61	-	9	14	-	-	-	9
W.N. CENTRAL	118	76	2	30	48	-	-	-	106
Minn.	8	9	1	8	2	-	-	-	36
Iowa	2	8	1	4	9	-	-	-	19
Mo.	107	53	-	16	21	-	-	-	-
N. Dak.	-	-	-	-	3	-	-	-	5
S. Dak.	-	-	-	-	2	-	-	-	11
Nebr.	1	-	-	-	1	-	-	-	-
Kans.	-	6	-	2	10	-	-	-	35
S. ATLANTIC	1,066	1,444	2	288	214	2	1	3	152
Del.	21	14	-	3	5	-	-	-	27
Md.	90	145	-	47	24	2	-	-	66
D.C.	73	87	-	12	21	-	1	-	3
Va.	77	114	-	18	20	-	-	-	13
W. Va.	3	4	-	9	9	-	-	-	3
N.C.	233	194	1	38	49	-	-	3	1
S.C.	159	203	1	31	30	-	-	-	10
Ga.	244	323	-	37	42	-	-	-	29
Fla.	166	360	-	93	14	-	-	-	-
E.S. CENTRAL	534	497	-	83	114	3	-	-	13
Ky.	13	8	-	37	33	2	-	-	8
Tenn.	118	246	-	-	-	1	-	-	-
Ala.	247	116	-	42	48	-	-	-	5
Miss.	156	127	-	4	33	-	-	-	-
W.S. CENTRAL	579	689	-	3	143	5	-	3	37
Ark.	95	53	-	3	18	2	-	2	4
La.	190	211	-	-	-	-	-	-	-
Okla.	22	22	-	-	3	3	-	1	33
Tex.	272	403	-	-	122	-	-	-	-
MOUNTAIN	71	71	3	42	56	-	-	-	14
Mont.	2	1	-	-	-	-	-	-	1
Idaho	1	2	-	4	-	-	-	-	-
Wyo.	-	1	-	-	-	-	-	-	8
Colo.	10	12	1	-	6	-	-	-	-
N. Mex.	7	3	-	6	-	-	-	-	-
Ariz.	29	52	1	23	36	-	-	-	5
Utah	1	-	1	-	13	-	-	-	-
Nev.	21	-	-	9	1	-	-	-	-
PACIFIC	142	432	5	670	544	-	12	-	38
Wash.	-	24	-	21	20	-	-	-	-
Oreg.	7	12	-	10	7	-	-	-	-
Calif.	124	395	5	617	489	-	11	-	35
Alaska	-	1	-	6	5	-	-	-	3
Hawaii	11	-	-	16	23	-	1	-	-
Guam	1	-	-	-	-	-	-	-	-
P.R.	7	24	-	-	15	-	-	-	3
V.I.	8	7	-	1	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	4	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending
February 8, 1992 (6th Week)

Reporting Area	All Causes, By Age (Years)						P&I [†]	Reporting Area	All Causes, By Age (Years)						P&I [†]
	All Ages	≥65	45-64	25-44	1-24	<1			All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	612	443	99	45	11	14	69	S. ATLANTIC	1,273	805	260	134	39	34	84
Boston, Mass.	181	121	34	11	5	10	22	Atlanta, Ga.	195	108	46	30	1	10	7
Bridgeport, Conn.	28	21	4	2	1	-	8	Baltimore, Md.	269	158	66	34	8	3	20
Cambridge, Mass.	28	23	3	2	-	-	4	Charlotte, N.C.	71	43	13	8	4	3	4
Fall River, Mass.	31	26	4	1	-	-	3	Jacksonville, Fla.	139	97	26	9	5	2	11
Hartford, Conn.	61	44	13	2	1	1	1	Miami, Fla.	104	60	24	15	-	-	-
Lowell, Mass.	25	15	7	3	-	-	3	Norfolk, Va.	65	47	7	3	5	3	6
Lynn, Mass.	12	8	1	3	-	-	1	Richmond, Va.	83	57	13	10	2	1	9
New Bedford, Mass.	29	25	2	2	-	-	-	Savannah, Ga.	69	42	19	4	2	2	7
New Haven, Conn.	45	27	10	7	-	1	3	St. Petersburg, Fla.	78	61	9	2	3	3	-
Providence, R.I.	37	29	4	4	-	-	4	Tampa, Fla.	179	118	32	17	9	2	18
Somerville, Mass.	5	4	1	-	-	-	-	Washington, D.C.	U	U	U	U	U	U	U
Springfield, Mass.	43	31	7	5	-	-	8	Wilmington, Del.	21	14	5	2	-	-	2
Waterbury, Conn.	39	32	4	1	2	-	6	E.S. CENTRAL	995	651	193	87	28	36	70
Worcester, Mass.	48	37	5	2	2	2	6	Birmingham, Ala.	149	100	25	15	6	3	5
MID. ATLANTIC	2,791	1,837	826	300	60	68	168	Chattanooga, Tenn.	72	48	14	5	1	4	7
Albany, N.Y.	57	41	9	3	1	3	2	Knoxville, Tenn.	115	74	25	8	4	4	12
Allentown, Pa.	25	21	2	2	-	-	3	Louisville, Ky.	169	114	31	13	1	10	11
Buffalo, N.Y.	103	75	17	6	2	3	7	Memphis, Tenn.	190	126	35	15	7	7	16
Camden, N.J.	48	25	8	11	3	1	2	Mobile, Ala.	117	70	21	16	6	4	7
Elizabeth, N.J.	32	23	5	4	-	-	2	Montgomery, Ala.	46	35	6	3	-	2	2
Erie, Pa.	48	38	10	-	-	-	1	Nashville, Tenn.	137	84	36	12	3	2	10
Jersey City, N.J.	50	31	13	4	2	-	1	W.S. CENTRAL	1,561	961	328	153	86	63	119
New York City, N.Y.	1,592	989	308	213	32	40	89	Austin, Tex.	91	60	13	13	3	2	11
Newark, N.J.	77	33	21	15	5	3	5	Baton Rouge, La.	29	17	6	3	3	-	1
Paterson, N.J.	17	12	3	-	2	-	-	Corpus Christi, Tex.	61	43	9	3	2	4	6
Philadelphia, Pa.	283	193	56	18	9	7	15	Dallas, Tex.	194	124	40	18	8	5	3
Pittsburgh, Pa.	70	47	14	5	1	3	8	El Paso, Tex.	67	40	17	5	2	3	3
Reading, Pa.	43	34	7	2	-	-	8	Ft. Worth, Tex.	122	71	21	10	4	16	5
Rochester, N.Y.	107	77	18	5	2	5	4	Houston, Tex.	402	217	102	49	18	16	46
Schenectady, N.Y.	24	22	2	-	-	-	-	Little Rock, Ark.	86	54	20	4	5	3	8
Scranton, Pa.	39	32	6	1	-	-	5	New Orleans, La.	167	93	37	21	7	9	-
Syracuse, N.Y.	86	63	16	4	1	2	8	San Antonio, Tex.	200	144	34	17	3	2	18
Trenton, N.J.	40	26	8	5	-	1	5	Shreveport, La.	36	28	4	3	1	-	6
Utica, N.Y.	25	21	2	2	-	-	3	Tulsa, Okla.	106	71	25	7	-	3	12
Yonkers, N.Y.	25	24	1	-	-	-	3	MOUNTAIN	904	612	174	71	21	25	77
E.N. CENTRAL	2,400	1,494	458	237	108	103	132	Albuquerque, N.M.	81	52	13	8	6	2	6
Akron, Ohio	54	38	10	1	4	1	6	Colo. Springs, Colo.	57	41	13	2	1	-	5
Canton, Ohio	32	26	4	2	-	-	6	Denver, Colo.	138	106	15	10	3	4	23
Chicago, Ill.	502	193	107	108	71	23	8	Las Vegas, Nev.	158	102	42	9	1	3	7
Cincinnati, Ohio	120	86	23	7	1	3	22	Ogden, Utah	17	14	1	-	-	2	3
Cleveland, Ohio	166	100	38	13	5	10	3	Phoenix, Ariz.	210	135	38	23	6	8	14
Columbus, Ohio	285	195	49	27	2	12	15	Pueblo, Colo.	30	25	5	-	-	-	2
Dayton, Ohio	128	88	33	4	-	3	9	Salt Lake City, Utah	87	61	16	5	1	4	11
Detroit, Mich.	252	147	56	27	12	10	8	Tucson, Ariz.	126	76	31	14	3	2	6
Evansville, Ind.	19	14	2	-	-	3	-	PACIFIC	2,172	1,477	386	188	63	51	198
Fort Wayne, Ind.	71	53	8	5	2	3	7	Berkeley, Calif.	32	28	-	4	-	-	3
Gary, Ind.	13	8	4	-	1	-	-	Fresno, Calif.	74	48	11	5	5	5	13
Grand Rapids, Mich.	68	47	12	4	-	5	5	Glendale, Calif.	25	16	8	-	1	-	2
Indianapolis, Ind.	171	117	33	13	2	6	14	Honolulu, Hawaii	86	59	15	6	3	3	5
Madison, Wis.	30	14	5	6	-	5	3	Long Beach, Calif.	112	69	26	10	4	3	17
Milwaukee, Wis.	141	103	25	8	2	3	10	Los Angeles, Calif.	600	378	124	62	21	8	32
Peoria, Ill.	56	41	9	2	1	3	2	Pasadena, Calif.	43	35	4	2	-	2	5
Rockford, Ill.	48	35	11	1	-	1	2	Portland, Ore.	157	119	22	11	1	4	12
South Bend, Ind.	47	37	7	-	1	2	5	Sacramento, Calif.	164	119	23	13	5	4	22
Toledo, Ohio	107	81	12	4	2	8	10	San Diego, Calif.	202	129	40	23	2	8	30
Youngstown, Ohio	90	71	10	5	2	2	3	San Francisco, Calif.	189	125	37	16	6	5	9
W.N. CENTRAL	860	635	140	81	14	20	45	San Jose, Calif.	177	119	32	15	9	2	22
Des Moines, Iowa	85	63	15	4	-	3	11	Santa Cruz, Calif.	36	30	2	4	-	-	4
Duluth, Minn.	28	23	3	1	-	1	1	Seattle, Wash.	123	89	16	11	4	3	5
Kansas City, Kans.	27	19	4	2	-	2	3	Spokane, Wash.	70	52	11	2	1	4	9
Kansas City, Mo.	127	98	15	10	2	2	6	Tacoma, Wash.	82	62	15	4	1	-	9
Lincoln, Nebr.	39	29	8	1	-	1	1	TOTAL	13,568 [‡]	8,915	2,564	1,266	400	414	562
Minneapolis, Minn.	219	166	33	15	2	3	16								
Omaha, Nebr.	67	44	17	4	2	-	1								
St. Louis, Mo.	158	113	27	5	7	6	1								
St. Paul, Minn.	50	34	11	2	1	2	4								
Wichita, Kans.	60	46	7	7	-	1	1								

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

‡Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

U: Total includes unknown ages.

†: Unavailable

Street Outreach — Continued

behavior changes were measured directly. Other factors that may have affected the decrease in gonorrhea among prostitutes are unknown.

In New York City (6) and Kinshasa, Zaire (7), shifts in attitudes and behaviors followed the implementation of similar programs to promote condom use in targeted populations. However, because the program in Colorado Springs was not conducted as part of a randomized trial with control communities, the effectiveness of outreach, message reinforcement, and repeated testing could not be rigorously evaluated. Nevertheless, in Denver (approximately 60 miles [100 km] north of Colorado Springs), infections with *N. gonorrhoeae* among STD clinic patients declined 21% (8), but infections with *N. gonorrhoeae* among prostitutes fluctuated.

Street outreach programs such as the one described in this report must be evaluated rigorously by state and local health departments, community-based organizations, and CDC. Future outreach evaluations should assess behavior changes in IDUs not in treatment and young persons at high risk for HIV infection and other STDs.

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Cigarette Smoking Bans in County Jails — Wisconsin, 1991

In the United States, an increasing number of prisons and jails are adopting restrictions on cigarette smoking (1,2); these restrictions could affect approximately 10 million inmates (3). Although the importance of smoking restrictions in the workplace and some public places (e.g., health-care facilities, schools, and public transportation) has been well described (4), information about smoking restrictions in jails is limited. This report summarizes preliminary findings from a survey of sheriffs in Wisconsin to assess the development of policies and to characterize smoking restrictions among county jails in the state.

During November 1991, the Wisconsin Department of Health and Social Services and CDC conducted a statewide survey of all 72 county jails by mailing a questionnaire to the sheriffs responsible for the jails. The questionnaire asked about the

Smoking Bans - Continued

current smoking policy in the jail, plans to change current policy, and the number of admissions to the jail during 1990. Of the 72 sheriffs, 64 (89%) participated in the survey.

During 1990, there were approximately 150,000 admissions* to county jails in Wisconsin; the average number of admissions per jail was 2405 (range: 60-22,164; median: 900). Information on the length of stay of persons incarcerated and their smoking habits was available for two jails. For the first jail, during November-December 1991, the average length of stay for the 1824 inmates was 18 days (range: 1-495; median: 2); 545 (30%) inmates stayed longer than 1 week; and 686 (71%) inmates surveyed smoked cigarettes. For the second jail, during November-December 1991, the average length of stay for the 1052 inmates was 29 days (range: 1-439; median: 6); 508 (48%) inmates stayed longer than 1 week; and 271 (93%) inmates surveyed smoked cigarettes.

Of the 64 jails, 21 (33%) had policies that banned smoking for inmates; 15 (23%) had smoking-restriction policies; and 28 (44%) had no policies to restrict smoking (Table 1). During 1992, sheriffs at 32 (50%) jails plan to ban or continue their ban on smoking; sheriffs at 16 (25%) jails plan to implement policies or continue policies to restrict smoking; and sheriffs at 16 (25%) jails have no plans to implement smoking restrictions or bans. During 1992, sheriffs at two of the 21 jails where smoking is banned plan to rescind the ban.

Of the 43 jails where inmates were allowed to smoke (15 with and 28 without restrictions), 13 plan to ban smoking in 1992. Implementation of these bans will prevent nearly 88,000 (60%) inmates statewide from being exposed to tobacco smoke.

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Editorial Note: In the United States, restrictions on smoking in public places are increasing in number and comprehensiveness (5). Although the primary goal of such restrictions is to protect persons who do not smoke from the unhealthy consequences of involuntary exposure to environmental tobacco smoke, they may also help to reduce smoking prevalence by changing attitudes and behaviors of current and potential smokers (5).

*A person may have been admitted more than once.

TABLE 1. Number of jails and inmates affected by smoking policies - Wisconsin, 1991 and planned for 1992

Type of policy	1991				Planned for 1992			
	Jails		Inmates		Jails		Inmates*	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Ban on smoking	21	(33)	65,753	(44)	32	(50)	87,861	(59)
Smoking restrictions	15	(23)	42,779	(29)	16	(25)	45,465	(31)
No smoking restrictions	28	(44)	39,789	(27)	16	(25)	14,995	(10)
Total	64	(100)	148,321	(100)	64	(100)	148,321	(100)

*Estimated numbers.

Smoking Bans — Continued

In Wisconsin and other locations, county jail administrators have initiated bans on cigarette smoking because 1) cigarettes are a safety hazard (i.e., cigarettes and materials used to light them may cause fires); 2) cigarettes may be used to smuggle other illicit drugs into jail; 3) awareness has increased about the negative health effects of active and passive smoking; and 4) some jail administrators are increasingly concerned about the legal rights of nonsmoking inmates to a smoke-free environment (6,7).

This survey has at least two limitations. First, no information was collected regarding the implementation of the smoking policies (e.g., time of introduction, problems in implementation, and enforcement). Second, only limited information was available on the length of stay of persons incarcerated and their smoking habits.

In the United States, more than one third of persons who are incarcerated are kept in custody in local jails, and the average length of stay in county jails varies (8). Although most nicotine withdrawal symptoms decrease dramatically during the first week of abstinence (9) (substantially less than the average length of stay for a sentenced county jail inmate [8]), it is unknown whether forced abstinence from nicotine encourages smokers to quit. However, if smokers who overcome the most severe nicotine withdrawal symptoms would consider quitting smoking, smoking-cessation counseling programs for these inmates before their release may offer an opportunity to reach otherwise inaccessible segments of the population. In Wisconsin, efforts have been initiated to assess the effects of different jail smoking policies on the desire of inmate smokers to quit smoking after they are released.

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Retrospective Assessment of Vaccination Coverage Among School-Aged Children — Selected U.S. Cities, 1991

Preschool-aged children are at increased risk for vaccine-preventable diseases; outbreaks of these diseases in this age group occur predominately among unvaccinated children (1). In the United States, vaccination rates of individual antigens required for children at the time they enter school are greater than 95%; however,

Vaccination Coverage — Continued

vaccination rates for children at their second birthday are substantially lower (2) despite recommendations by the Immunization Practices Advisory Committee (ACIP) and the American Academy of Pediatrics that all children complete a schedule of vaccination by age 15–18 months.* To retrospectively assess vaccination levels among school-aged children at their second birthday, CDC, in collaboration with state and local health departments, is conducting surveys of vaccination levels among children entering school who reside in the 60 largest U.S. cities. This report presents findings from surveys completed in nine cities† during 1991.

These surveys use a multistage cluster survey design in which public and private schools are randomly selected in proportion to their estimated size (5). At each school, health records for kindergarten or first-grade students aged 4–7 years are randomly selected and the dates of vaccinations abstracted. Vaccination status is assessed for each child at age 3 months (92 days) and at the second birthday (732 days). Vaccination levels for two different combinations of vaccine doses are determined: four doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP), three doses of oral poliomyelitis vaccine (OPV), and one dose of measles, mumps, and rubella vaccine (MMR) (4:3:1) or three doses of DTP, three doses of OPV, and one dose of MMR (3:3:1). In addition, individual coverage levels are determined for the third and fourth doses of DTP (DTP3, DTP4), third dose of OPV (OPV3) and one dose of MMR.[‡] Coverage rates are calculated both for all vaccines administered at any age and for only vaccines administered at the recommended ages and intervals (i.e., strict definition for timing of valid doses).[§]

For the nine cities surveyed, the proportion of children who were up-to-date with valid doses by their second birthday, based on the 4:3:1 schedule, ranged from 10% in Houston to 42% in El Paso (Table 1); however, with a 3:3:1 schedule, vaccination rates were higher (range: 40% [Houston] to 61% [El Paso]). In addition, when up-to-date vaccination levels for the 4:3:1 schedule were determined without application of the strict definitions for timing of valid doses, the coverage rates increased by 1%–6% for the nine cities.

When evaluated individually, vaccination levels for specific antigens were higher than vaccination levels for the complete vaccination series (Table 1). Vaccination coverage rates by the second birthday were 11%–47% for DTP4, 53%–77% for OPV3,

*The ACIP recommends vaccination that includes four doses of diphtheria and tetanus toxoids and pertussis vaccine; three doses of oral poliomyelitis vaccine; one dose of measles, mumps, and rubella vaccine; and a complete series for *Haemophilus influenzae* type b —either three or four doses, depending on the type of vaccine. In late 1991, hepatitis B vaccine was recommended for universal vaccination of infants (3,4).

†Cleveland; El Paso and Houston, Texas; Miami; New Orleans; New York City (Bronx); Oakland, California; St. Louis; and Washington, D.C.

‡*Haemophilus influenzae* type b vaccination status was not evaluated because this vaccine is not required for school entry in all states and data are not available in school records.

§Strict definition for timing of valid doses are as follows: the first DTP dose must be given after 42 days (6 weeks) of age with dose two and three each given after a minimal interval of 28 days. The fourth DTP dose must be given at least 180 days after dose three. For OPV, the first dose must be given after 42 days (6 weeks) of age, with dose two given a minimum of 42 days after the first dose. The third dose of OPV must be given a minimum of 42 days after the second dose. Any dose of MMR given on or after the first birthday was defined as a valid dose. Children with health records that were not located (<4% of all children assessed in all schools) were defined as not vaccinated. Only records that had dates for all vaccinations administered were assessed as valid.

Vaccination Coverage — Continued

and 52%–71% for MMR. In the nine cities, 61%–72% of children did not receive DTP4 at the time they received MMR.

On average, 90% of children had received at least one vaccination before their first birthday (range: 79% in Miami to 96% in Cleveland). Of all children surveyed, 83%–98% had had at least one contact with vaccination services by age 2 years. Most children began the vaccination series on time: 53%–73% were vaccinated by age 3 months. Children whose vaccination series was up-to-date by age 3 months (i.e., had received the first dose of DTP and OPV) were 3.1 times more likely (range: 2.7–17.0 times) to be up-to-date with the 4:3:1 combination by their second birthday than those not up-to-date by age 3 months (Table 2). However, fewer than half completed their primary series at age 2 years, even among those who were up-to-date at age 3 months (Table 2).

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Editorial Note: One of the national health objectives for the year 2000 is to vaccinate 90% of children with the primary series by their second birthday (objective 20.11) (1). However, during the mid- to late 1980s, vaccination levels in the nine major U.S. cities reported here were substantially below the stated 90% goal and lower than levels in

TABLE 1. Percentage of children vaccinated based on valid doses at their second birthday* for two vaccination schedules and single antigens — selected U.S. cities, 1991

City	Vaccination schedule		Single antigen			MMR
	4:3:1†	3:3:1‡	DTP4†	DTP3**	OPV3††	
Cleveland	36	53	41	84	64	70
El Paso	42	61	47	79	77	70
Houston	10	40	11	61	53	57
Miami	27	42	32	68	57	52
New Orleans	40	53	44	80	61	69
New York City (Bronx)	36	53	41	79	73	61
Oakland	38	55	42	77	68	65
St. Louis	38	60	42	81	72	71
Washington, D.C.	38	58	42	77	69	68

*Based on retrospective survey of kindergarten and first-grade students, 1991. Children in El Paso and Houston, Texas, and Washington, D.C., were 2 years of age in 1987–88. Children in Cleveland; Miami; New Orleans; New York City (Bronx); Oakland, California; and St. Louis were 2 years of age in 1986–87.

†Four doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP), three doses of oral poliomyelitis vaccine (OPV), and one dose of measles, mumps, and rubella (MMR) vaccine.

‡Three doses of DTP and OPV and one dose of MMR.

§Dose four of DTP.

**Dose three of DTP.

††Dose three of OPV.

Vaccination Coverage — Continued

other reports (2,6). For example, during 1985, national estimates of vaccination levels for individual antigens ranged from 77% to 86% for children age 2 years (CDC, unpublished data, 1985) compared with levels that ranged from 52% to 84% in this report. However, the 1985 findings were based on a national sample and did not represent the large urban areas that constituted the populations sampled for these retrospective surveys.

Low vaccination rates with the recommended 4:3:1 schedule have been attributed, in part, to the difficulty of administering the DTP4 dose on schedule. However, even without DTP4, the rates are substantially less than the year 2000 objective. Although OPV3 and DTP4 are both recommended for children at age 15 months, OPV3 coverage substantially exceeded DTP4 coverage primarily because 35%–78% of children receiving OPV3 did so during the first rather than the second year of life. Furthermore, findings indicated that many children failed to receive DTP4 at their MMR visit. In 1986, ACIP recommended that DTP4 and MMR be administered at the same visit; had these recommendations been in effect and adhered to when these children were aged 15–18 months, coverage of DTP4 and the 4:3:1 series could have been higher (7). Each contact with health-care providers represents an opportunity to educate parents about the recommended vaccination schedule and the importance of completing the schedule on time.

The findings in this report confirm previous findings regarding children who had not received the first doses of DTP and OPV by age 3 months and who, therefore, were at increased risk for not being up-to-date by their second birthday (8,9). Parents of children who begin the vaccination series late should be targeted for intensive education, and greater efforts are needed to track these children to assure they return for follow-up doses.

To improve vaccination levels by age 2 years among children in the United States, CDC has begun the Infant Immunization Initiative. As part of this initiative, each state and local health department is encouraged to measure current vaccination levels and develop strategies to improve them. The retrospective survey method described in

TABLE 2. Percentage of children with up-to-date vaccination levels at their second birthday*, based on their vaccination status† at 3 months of age — selected U.S. cities, 1991

City	Up-to-date at age 3 mos	Not up-to-date at age 3 mos
Cleveland	46	16
El Paso	56	17
Houston	17	1
Miami	42	10
New Orleans	51	19
New York City (Bronx)	48	16
Oakland	52	17
St. Louis	52	13
Washington, D.C.	58	19

*Based on retrospective survey of kindergarten and first-grade students, 1991. Children in El Paso and Houston, Texas, and Washington, D.C., were 2 years of age in 1987–88. Children in Cleveland; Miami; New Orleans; New York City (Bronx); Oakland, California; and St. Louis were 2 years of age in 1986–87.

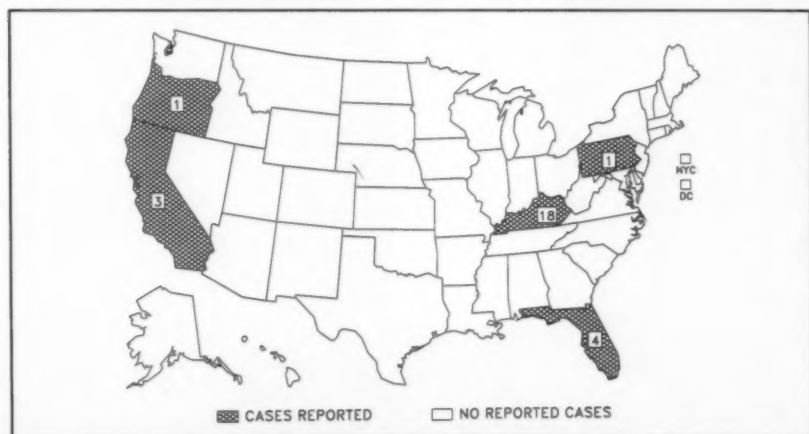
†Four valid doses of diphtheria and tetanus toxoids and pertussis vaccine, three valid doses of oral poliomyelitis vaccine, and one valid dose of measles, mumps, and rubella vaccine.

Vaccination Coverage — Continued

this report is easy to implement, can be completed rapidly and inexpensively, allows different outcome measurements of vaccination levels at different ages, and provides reliable data based on school records that are easy to review. Even though these retrospective surveys cannot detect recent changes in vaccination levels, when regularly conducted statewide they can be used to monitor secular trends in vaccination levels.

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Reported cases of measles, by state — United States, weeks 1–4, 1992

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